

Amendments to the Claims

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of claims

Claim 1: (PREVIOUSLY PRESENTED) A method for implementing a state model for managing a network coupled to a central management system, said method comprising:

presenting a user interface for said central management system to enable a user to define at least one state model for managing said at least one network element based on a determined state of said at least one network element;

presenting a user interface for said central management system to enable a user to define at least one poll service that includes at least one of said at least one state model;
and

executing said at least one poll service to manage said at least one network element.

Claim 2: (PREVIOUSLY PRESENTED) The method of claim 1 further comprising the steps of:

distributing said at least one poll service to at least one distributed polling gateway that is communicatively coupled with said at least one network element; and

communicatively coupling said user interface to said at least one distributed polling gateway.

Claim 3: (PREVIOUSLY PRESENTED) The method of claim 1 further comprising:

distributing said at least one poll service defined by said user to at least one distributed polling gateway for execution thereon.

Claim 4: (PREVIOUSLY PRESENTED) The method of claim 1 further comprising:

distributing said at least one poll service defined by said user to a plurality of distributed polling gateways for execution thereon.

Claim 5: (PREVIOUSLY PRESENTED) The method of claim 4 wherein said plurality of distributed polling gateways each have the ability to communicate with one or more network elements in a particular one of communication protocols selected from the group consisting of: SNMP protocol and CMIP protocol.

Claim 6: (ORIGINAL) The method of claim 3 wherein said at least one distributed polling gateway filters data for said central management system.

Claim 7: (ORIGINAL) The method of claim 6 wherein said at least one distributed polling gateway only communicates data satisfying said at least one state model to said central management system.

Claim 8: (ORIGINAL) The method of claim 3 wherein said at least one distributed polling gateway executes software to evaluate a user-defined state model condition to determine whether to execute each of said at least one state model.

Claim 9: (ORIGINAL) The method of claim 8 wherein said state model condition specifies that said at least one state model is to be executed only for particular network elements.

Claim 10: (ORIGINAL) The method of claim 3 wherein said at least one distributed polling gateway operates to retrieve from said at least one network element needed values for values defined for said at least one state model.

Claim 11: (ORIGINAL) The method of claim 10 wherein said at least one distributed polling gateway executes software to evaluate one or more user-defined equations for said at least one state model utilizing the retrieved variable values.

Claim 12: (ORIGINAL) The method of claim 3 wherein said at least one distributed polling gateway executes software to evaluate one or more user-defined state transition conditions for said at least one state model to determine whether said one or more user-defined state transition conditions are satisfied.

Claim 13: (ORIGINAL) The method of claim 12 wherein if said at least one distributed polling gateway determines that said one or more user-defined state transition conditions are not satisfied, then the state of said at least one network element remains unchanged.

Claim 14: (ORIGINAL) The method of claim 12 wherein if said at least one distributed polling gateway determines that said one or more user-defined state transition conditions are satisfied, then a state transition for said at least one network element is triggered.

Claim 15: (ORIGINAL) The method of claim 14 wherein one or more user-defined transition actions for said state transition are triggered in response to said state transition.

Claim 16: (ORIGINAL) The method of claim 12 wherein if said at least one distributed polling gateway determines that said one or more user-defined state transition conditions are satisfied in a user-defined number of consecutive polls of said at least one network element, then a state transition for said at least one network element is triggered.

Claim 17: (ORIGINAL) The method of claim 16 wherein one or more user-defined transition actions for said state transition are triggered in response to said state transition.

Claim 18: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said presenting a user interface on a management system to enable a user to define at least one state model, further comprises:

- providing a user interface that allows a user to define a plurality of states within a state model for a network element;

- providing a user interface that allows a user to define at least one transition condition that specifies when a transition from one of said plurality of states to another of said plurality of states is to occur; and

- providing a user interface that allows a user to define at least one transition action to be performed upon the occurrence of said transition.

Claim 19: (PREVIOUSLY PRESENTED) The method of claim 1 further comprising:
correlating various different models of said at least one state model.

Claim 20: (PREVIOUSLY PRESENTED) The method of claim 19 wherein software code executes on said at least one distributed polling gateway communicatively coupled to said central management system to perform said step of correlating.

Claim 21: (CURRENTLY AMENDED) The method of claim 20 wherein said software code triggers an action based upon a user-defined pattern of states of said various different models being achieved.

Claim 22: (PREVIOUSLY PRESENTED) The method of claim 21 wherein said action includes any one or more selected from the group consisting of:

generating a user alert, clearing said user alert, starting particular services for said at least one network element, stopping said particular services for said at least one network element, changing the interval utilized to poll said at least one network element, enabling a particular poll service for said at least one network element, disabling said particular poll service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, triggering one or more user-defined commands to be executed, triggering communication of an email message to personnel, triggering a page of personnel, logging achievement of said pattern of states to a file, and performing network element configuration.

Claim 23: (CURRENTLY AMENDED) The method of claim 1 wherein said at least one network element ~~provides data according to a protocol~~ is selected from the group consisting of:

ATM, Sonet, router, modem, CMIP EMS, switch, OSS, NMS, and web server.

Claim 24: (ORIGINAL) The method of claim 1 wherein said user interface is a graphical user interface.

Claim 25: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said at least one state model includes:

software code specifying at least two user-defined states for said at least one network element;

software code specifying at least one transition from a first of said at least two user-defined states to a second of said at least two user-defined states; and

software code specifying at least one transition action to be performed upon the occurrence of said at least one transition.

Claim 26: (PREVIOUSLY PRESENTED) The method of claim 25 wherein said transition action includes any one or more selected from the group consisting of:

generating a user alert, clearing said user alert, starting particular services for said at least one network element, stopping said particular services for said at least one network element, changing the interval utilized to poll said at least one network element, enabling a particular poll service for said at least one network element, disabling said particular poll service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, triggering one or more user-defined commands to be executed, triggering communication of an email message to personnel, triggering a page of personnel, logging achievement of said pattern of states to a file, and performing network element configuration.

Claim 27: (PREVIOUSLY PRESENTED) The method of claim 25 wherein said transition action includes any one or more selected from the group consisting of:

enabling a particular poll service for said at least one network element, disabling said particular poll service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, and triggering one or more user-defined commands to be executed.

Claim 28: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said executing said at least one poll service further includes:

triggering execution of said at least one poll service in response to the occurrence of a user-defined event.

Claim 29: (ORIGINAL) The method of claim 28 wherein said user-defined event includes a particular fault condition defined by a user.

Claim 30: (ORIGINAL) The method of claim 1 wherein said at least one poll service is executed only if a user-defined activation condition for said at least one poll service is satisfied.

Claim 31: (ORIGINAL) The method of claim 30 wherein said user-defined activation condition specifies that said poll service is for a particular type of network element.

Claim 32: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said central management system enables a user to dynamically define said at least one poll service during runtime.

Claim 33: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said central management system enables a user to dynamically define said at least one state model during runtime.

Claim 34: (PREVIOUSLY PRESENTED) The method of claim 1 wherein said central management system enables a user to dynamically modify an existing poll service or state model during runtime.

Claim 35: (PREVIOUSLY PRESENTED) A method for enabling state-based management of a network, wherein network elements are managed based on their state, said method comprising:

receiving input from a user at a management system to define at least one state model for managing at least one network element based on a determined state of said at least one network element;

receiving input from a user at said management system to define at least one poll service that includes at least one of said at least one state model;

distributing said at least one poll service including said at least one state model to at least one distributed polling gateway that is communicatively coupled with said at least one network element; and

executing said at least one poll service at said at least one distributed polling gateway to manage said at least one network element,

wherein said management system is a central management system that is communicatively coupled to said at least one distributed polling gateway.

Claim 36: (CANCELED)

Claim 37: (PREVIOUSLY PRESENTED) The method of claim 35 further comprising:

distributing said at least one poll service defined by said user to said at least one distributed polling gateway for execution thereon.

Claim 38: (ORIGINAL) The method of claim 37 wherein said at least one distributed polling gateway filters data for said central management system.

Claim 39: (ORIGINAL) The method of claim 38 wherein said at least one distributed polling gateway only communicates data satisfying said at least one state model to said central management system.

Claim 40: (ORIGINAL) The method of claim 37 wherein said at least one distributed polling gateway executes software to evaluate one or more user-defined state transition conditions for said at least one state model to determine whether said one or more user-defined state transition conditions are satisfied.

Claim 41: (ORIGINAL) The method of claim 40 wherein if said at least one distributed polling gateway determines that said one or more user-defined state transition conditions are satisfied, then a state transition for said at least one network element is triggered.

Claim 42: (ORIGINAL) The method of claim 41 wherein one or more user-defined transition actions for said state transition are triggered in response to said state transition.

Claim 43: (PREVIOUSLY PRESENTED) The method of claim 35 wherein said received input from said user to define said at least one state model comprises:

- input to define a plurality of states within a state model for a network element;
- input to define at least one transition condition that specifies when a transition from one state to another state is to occur; and
- input to define at least one transition action to be performed upon the occurrence of said at least one transition.

Claim 44: (PREVIOUSLY PRESENTED) The method of claim 35 further comprising:
correlating various models from said at least one state model.

Claim 45: (PREVIOUSLY PRESENTED) The method of claim 44 wherein software code executes on said at least one distributed polling gateway communicatively coupled to said central management system to perform said step of correlating.

Claim 46: (CURRENTLY AMENDED) The method of claim 45 wherein said software code triggers an action based upon a user-defined pattern of states of said various models being achieved.

Claim 47: (PREVIOUSLY PRESENTED) The method of claim 46 wherein said action includes any one or more selected from the group consisting of:

- generating a user alert, clearing said user alert, starting particular services for said at least one network element, stopping said particular services for said at least one network element, changing the interval utilized to poll said at least one network element, enabling a particular poll service for said at least one network element, disabling said particular poll service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, triggering one or more user-defined commands to be executed, triggering communication of an email message to personnel, triggering a page of

personnel, logging achievement of said pattern of states to a file, and performing network element configuration.

Claim 48: (PREVIOUSLY PRESENTED) A system for managing network elements based on their state, said system comprising:

at least one network element;

one or more distributed gateways for monitoring said at least one network element, said one or more distributed gateways communicatively coupled to a central management system between said at least one network element and said central management system; and

at least one state model executing on said one or more distributed gateways for managing said at least one network element based on a determined state of said at least one network element, said at least one state model capable of being dynamically defined during runtime.

Claim 49: (ORIGINAL) The system of claim 48 further comprising:

software executing on said central management system to enable a user to define said at least one state model, wherein once a user defines said at least one state model, it is communicated to said one or more distributed gateways for execution thereon.

Claim 50: (PREVIOUSLY PRESENTED) The system of claim 48 wherein said one or more distributed gateways further include at least one user-defined poll service that includes one or more of said at least one state model.

Claim 51: (ORIGINAL) The system of claim 50 further comprising:

software executing on said central management system to enable a user to define said at least one poll service, wherein once a user defines said at least one poll service, it is communicated to said one or more distributed gateways for execution thereon.

Claim 52: (ORIGINAL) The system of claim 48 wherein said one or more distributed polling gateways only communicate data satisfying said at least one state model to said central management system.

Claim 53: (ORIGINAL) The system of claim 48 wherein said one or more distributed polling gateways execute software to evaluate one or more user-defined state transition conditions for said at least one state model to determine whether said one or more user-defined state transition conditions are satisfied.

Claim 54: (ORIGINAL) The system of claim 53 wherein if said one or more distributed polling gateways determine that said one or more user-defined state transition conditions are satisfied, then a state transition for said at least one network element is triggered.

Claim 55: (ORIGINAL) The system of claim 54 wherein one or more user-defined transition actions for said state transition are triggered in response to said state transition.

Claim 56: (PREVIOUSLY PRESENTED) The system of claim 48 wherein said one or more distributed polling gateways further comprises:

at least one pattern-based state model executing thereon to correlate various of said at least one state model.

Claim 57: (PREVIOUSLY PRESENTED) The system of claim 56 wherein said at least one pattern-based state model specifies a user-defined pattern of states of said various models, and wherein said at least one pattern-based state model triggers an action upon said user-defined pattern of states being achieved.

Claim 58: (PREVIOUSLY PRESENTED) The system of claim 57 wherein said action includes anyone or more selected from the group consisting of:

generating a user alert, clearing said user alert, starting particular services for said at least one network element, stopping said particular services for said at least one network element, changing the interval utilized to poll said at least one network element, enabling a particular poll service for said at least one network element, disabling said particular poll

service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, triggering one or more user-defined commands to be executed, triggering communication of an email message to personnel, triggering a page of personnel, logging achievement of said pattern of states to a file, and performing network element configuration.

Claim 59: (PREVIOUSLY PRESENTED) Method for performing state-based management of a network, wherein network elements are manageable based on their state through a central management system, said method comprising:

executing, on at least one distributed gateway located between the central management system and the network elements, at least one user-defined state model for managing at least one network element based on a determined state of said at least one network element, wherein said executing at least one user-defined state model includes polling said at least one network element for data, evaluating said data to determine whether a user-defined state transition condition is satisfied, and triggering a state transition if said user-defined state transition condition is satisfied for a user-defined number of consecutive polls of said at least one network element.

Claim 60: (ORIGINAL) The method of claim 59 wherein said user-defined number of consecutive polls is a plurality of polls.

Claim 61: (PREVIOUSLY PRESENTED) The method of claim 59 further comprising:

software executing on said central management system to enable a user to define said at least one state model wherein once a user defines said at least one state model, it is communicated to one or more distributed gateways that are communicatively coupled to said central management system for execution on said one or more distributed gateways.

Claim 62: (ORIGINAL) The method of claim 59 wherein if said user-defined state transition condition is satisfied for a user-defined number of consecutive polls of said at least one network element, then one or more user-defined transition actions for the user defined state transition are triggered.

Claim 63: (PREVIOUSLY PRESENTED) The method of claim 62 wherein said one or more transition actions include any one or more selected from the group consisting of:

generating a user alert, clearing said user alert, starting particular services for said at least one network element, stopping said particular services for said at least one network element, changing the interval utilized to poll said at least one network element, enabling a particular poll service for said at least one network element, disabling said particular poll service for said at least one network element, enabling a particular state model for said at least one network element, disabling said particular state model for said at least one network element, triggering one or more user-defined commands to be executed, triggering communication of an email message to personnel, triggering a page of personnel, logging achievement of said pattern of states to a file, and performing network element configuration.

Claim 64: (PREVIOUSLY PRESENTED) A system for managing at least one network element comprising:

at least one network element;

at least one gateway for monitoring said at least one network element, said at least one gateway communicatively coupled to a central management system between said at least one network element and said central management system; and

at least one state model executing on said at least one gateway for managing said at least one network element based on a determined state of said at least one network element, said at least one state model capable of being dynamically defined during runtime.